

REMARKS

In the Office Action, the Examiner noted that Claims 1 through 20 were pending in the Application. The Examiner rejected all claims. Applicants traverse the rejections below.

I. Traversal of the Rejections over the Cited Art

The Examiner rejected Claims 1 - 20 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,243,751 to Chatterjee et al (Chatterjee) and further in view of U.S. Patent No. 6,477,569 to Sayan et al (Sayan). Applicants traverse this rejection below.

A. The Present Invention

According to the present invention, a gateway provides communication of tightly coupled XA transactions to a server hosting a DBMS and makes efficient use of domain socket pairs to implement demultiplexing in the gateway. The gateway includes a listener process receives inbound connection requests from the transaction manager. Logical agents represent the application connection and are managed by a logical agent scheduler and are passed within the gateway using domain socket pairs. Gateway agents are dedicated to identified tightly coupled XA transactions to provide tightly coupled XA transaction support for DBMS systems which do not provide such support directly.

B. Differences Between the Claims and the Cited Art

Chatterjee describes a technique for allowing clients to share ports on a server, thereby permitting the server to maintain more sessions than server ports. When a client sends a command to the server, a resource manager inserted between the clients and the server intercepts the command and directs the server to select the session associated with a client prior to or at the same time that the resource manager forwards the intercepted command to the server. Responses

from the server are forwarded by the resource manager to the client that send the command to which the response relates. While superficially similar to the present invention, the functionality and purpose of Chatterjee are fundamentally different than that of the present invention.

Sayan discloses a technique for managing a computer network utilizing a process pool. A pool master dispatches agents for transaction processing. The agents are application specific and utilize a common interface. The process pool grows as transactions increase and contracts as transactions decrease.

Claim 1 recites “a listener process for receiving inbound connection requests from the transaction manager”. Relative to the listener process, the Office Action cites what is apparently generic “server software 210” (col. 1, lines 60-64) which, “when a connection is established...establishes a process to handle communications over the connection and executes commands received, and maintains information about the process during the period in which the connection is maintained. The process is associated with the port....that was used to establish the session, and all communications received from that port...are routed to that process by the operating system 212, the server software 210 or both.” (Col. 2, lines 8-17). While the server software is apparently the component alleged to teach the listener process, it is unclear what from this subject matter teaches that the listener process receives an inbound connection request from a transaction manager. No transaction manager is discussed in these passages. Rather, it is the clients that are communicating with the server by establishing a connection. See Column 1, line 65 through Column 2, line 8. “Each client 112, 114, 116 may establish and maintain one of more simultaneous connections to the server 110”. Nothing that corresponds to a transaction manager has been identified as being taught or disclosed by Chatterjee at this point of the Office Action.

Claim 1 also recites “a set of gateway agents for establishing connections to the transaction manager for receiving transaction requests and for establishing connections to the server”. Relative to this subject matter, the Office Action cites a series of passages from columns 2, 3 and 4. Note that the portion of the rejection cited above failed to provide for a transaction

manager. The passage from column 2, lines 62-65 describes how “[e]ach connection...between the server 110 and the clients 112, 114, 116 requires resources on the server 110 such as memory to manage the process and the connection ... associated with the session.” How this related to the recited subject matter is unclear. The server connections were already established by the clients directly, as discussed above relative to the first element of Claim 1. No ‘transaction manager’ has been described in Chatterjee to this point. This passage does not teach, suggest or disclose anything that corresponds to a set of gateway agents, much less a set of gateway agents that establish connections to the transaction manager. The passage from Column 3 discusses a TP monitor 310 which receives queries or other server command from the clients and passes these to the server. A TP monitor is an element developed to allows more users to use a server than the number of connections established with the server (Column 3, Lines 25-27). Certainly, this does not teach a set of gateway agents for establishing connections to a transaction manager. The passage from Column 4 discusses a resource manager which can direct a server to initiate sessions with each of the clients to which it is attached. Still, no gateway agents are discussed or otherwise taught by Chatterjee.

Claim 1 also recites a “a wait queue”. Relative to this subject matter, two passages from Chatterjee that note that commands are queued are cited.

Claim 1 further recites “a logical agent scheduler for managing sets of logical agents, a logical agent comprising data representing a connected application from the transaction manager, each logical agent having an associated inbound connection identifier”. Relative to this subject matter, a passage from column 5 of Sayan is cited. The cited passage states that a “client first issues a connection request to the pool master 20, which will assign one or more pool agents 23 to the client. Then the client communicates directly to the agent using its own communication channel 24. The pool agent 23 informs the pool master 20 whenever requests have been transmitted on such channel. The pool master 20 is configured through a configuration file...”. Applicants are unable to find what in this passage teaches a logical agent that comprises “data representing a connected application from the transaction manager”. Still, no transaction

manager is identified. In Sayan, after a client issues a connection request to a pool master, an agent is assigned to the client. The subject matter from Claim 1 does not recite that a client issues a connection request to a pool and is assigned a pool agent. Rather, a logical agent per Claim 1 comprises data representing a connected application from the transaction manager. Once again, no transaction manager is identified. No “associated inbound connection identifier” is discussed in this passage. Is it being alleged that the pool master teaches the logical agent scheduler? Clearly, much of the subject matter from this element of Claim 1 is in no way taught, suggested or disclosed by Sayan.

Claim 1 goes on to recite that “the logical agent scheduler passes a selected logical agent and an associated inbound connection identifier to an available gateway agent and where the gateway has no available gateway agent, providing the logical agent and the associated inbound connection identifier to the wait queue”. Figures 12 - 16 are cited against this subject matter. These Figures show static TCP agents, busy agents and idle agents. Agents are not passed. One agent seems to become a different kind of agent. No identifier is passed to a gateway agent. It is not clear what from Sayan is alleged to be a gateway agent. No wait queue is provided in these figures. Clearly, the cited subject matter is not taught, suggested or disclosed by Sayan.

Claim 1 further recites that “a selected gateway agent removes a logical agent and an associated inbound connection identifier from the wait queue when the selected gateway agent is available and the wait queue is non-empty”. In Chatterjee, the wait queue holds commands, not agents. Subject matter from Columns 14 and 16 of Chatterjee are cited against this subject matter. No logical agents or gateway agents were identified in the Office Action as being taught, suggested or disclosed by Chatterjee. Clearly, this subject matter is not taught, suggested or disclosed by Chatterjee.

Lastly, Claim 1 recites that “for a logical agent passed by the logical agent scheduler or removed from the wait queue, the gateway agent establishes a connection to the transaction manager as defined by the associated inbound connection identifier and establishes a connection

to the server to implement the logical agent.” Relative to this subject matter, passages from Columns 14 and 19 of Chatterjee are cited. However, the Office Action apparently alleges that the logical agents and the logical agent scheduler are taught by Sayan, not Chatterjee. And, as discussed above, Chatterjee queues commands, not agents. How Chatterjee possibly teaches this subject matter, which includes elements that are not even included in Chatterjee, is not explained.

Accordingly, Applicants submit that Claim 1 patentably distinguishes over Chatterjee, Sayan, and their combination as cited by the Examiner. Accordingly, it follows that independent Claim 12, which was rejected for the same reasons as Claim 1, also patentably distinguishes over the cited art and their combination. It also follows that dependent Claims 2-6 and 13 - 15 also distinguish therefrom.

Independent Claim 7 recites “a gateway for demultiplexing connections from a first system to a second system”. Relative to this subject matter, the Office Action cites Figure 16 of Sayan. Figure 16 “is a diagrammatic representation of the process pool of the present invention using a master daemon.” (See Column 3, lines 42-43.) Figure 16 is apparently mentioned only once in the rest of Sayan, in column 11. This passage does not address demultiplexing connections from a first system to a second system. It generally discusses the process and communication architecture of the process pool. The Sayan process pool was discussed above, and, as discussed above, the process pool per Sayan is not a gateway for demultiplexing connections from a first system to a second system. No discussion of multiplexing or demultiplexing is provided in Sayan.

Further, Claim 7 recites that the gateway comprises “internal processes which are selectively connected to implement the demultiplexing function of the gateway”. Relative to this subject matter, Figure 4A of Chatterjee is cited. Figure 4A shows clients connected to a resource manager 420 connected to a server 410 connected to storage 102. The Office Action does not state what represents the gateway of Claim 7. No demultiplexing function is identified or taught.

Claim 7 also recites “the gateway comprising a wait queue, the wait queue providing a buffering function for both the connections between the first system and the second system and for the connections between the internal processes.” Relative to this subject matter, the Office Action cites passages from Columns 4, 12 and 14 from Chatterjee. The passage from Column 4 does not address wait queues at all. As discussed above, the passages from Columns 12 and 14 discuss the concept that “commands received from a port... are queued by resource command forwarder module...” There is no discussion of a buffering function for connections between a first and second system. There is no discussion of a buffering function for connections between internal processes. Rather, *commands* are buffered until an acknowledgment is received for the last command.

Relative to Claim 7, it is not at all clear which elements of Chatterjee and Sayan are combined to teach the claimed subject matter. Various elements are picked and chosen and then dropped as convenient, and no reason is provided for combining the elements in the manner described.

Accordingly, Applicants submit that independent Claim 7 patentably distinguishes over the combination of Sayan and Chatterjee. Since independent Claim 16 was rejected for the same reasons as Claim 7, it follows that Claim 16 patentably distinguishes over the cited art. It also follows that dependent Claims 8, 9, 15 and 16 also distinguish over the cited combination of art.

Independent Claim 10 recites a “computer system for demultiplexing a set of TCP/IP inbound connections to a set of outbound connections, the computer system comprising a plurality of scheduler processes for providing TCP/IP inbound connections to agent processes for establishing corresponding outbound connections”. Relative to this subject matter, the Office Action cited Figures 1 and 12-16 and Column 5, lines 32-42 of Sayan. As discussed above, the Figures only show a basic environment or interactions among the various agents specific to and defined by Sayan. The passage from Column 5 discusses the client-server architecture of Figure 4A. The passage goes on to discuss keeping certain designating certain sessions as active. There

is no discussion of a plurality of scheduler processes for proving inbound connections to agent processes for establishing corresponding outbound connections. Accordingly, Applicants submit that Sayan does not teach, suggest or disclose the subject matter from Claim 10 which it is alleged to disclose.

Claim 10 also recites “the scheduler processes and the agent processes communicating by domain socket pairs in the computer system, each scheduler process having a dedicated domain socket pair for receiving a TCP/IP inbound connection endpoint, the domain socket pairs for communication to the agent processes being available from a pool of domain sockets.” Relative to this subject matter, only drawing figures from both Sayan and Chatterjee are cited. None of these figures shows scheduler processes and agent processes. No pool of domain sockets is illustrated. Each scheduler process having a dedicated domain socket pair is shown. No discussion as to how or why the elements illustrated in the drawing figures of Chatterjee and Sayan can be combined to show the subject matter of Claim 10 is provided. Accordingly, Applicants submit that independent Claim 10 patentably distinguishes over the cited combination of art.

Since independent Claim 19 was apparently rejected for the same reasons as Claim 10, it follows that Claim 19 also patentably distinguishes over the cited combination of art. It also follows that dependent Claims 11 and 20 also distinguish over the cited combination of art.

C. No Reason to Combine the Cited Art

Applicants also submit that the combination of references is improper. There must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The

teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaack*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP 2143 - 2143.03 for decisions pertinent to each of these criteria.

The initial burden is on the examiner to provide some suggestion of the desirability of doing what the inventor has done. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). See MPEP Section 2144 - Section 2144.09 for examples of reasoning supporting obviousness rejections.

When the motivation to combine the teachings of the references is not immediately apparent, it is the duty of the examiner to explain why the combination of the teachings is proper. *Ex parte Skinner*, 2 USPQ2d 1788 (Bd. Pat. App. & Inter. 1986).

Applicants submit that the criteria described above for combining the references has not been met. No convincing line of reasoning was provided for combining the technique for permitting clients to share ports on a server from Chatterjee with the technique for using a process pool for managing a network so as to result in the present claimed invention. Nothing from either reference suggested their combination. The various elements from the two references are not the same and do not have the same functionality. Yet, in the Office Action, disparate elements from two references are somehow fit together to 'teach' the claimed subject matter. Relative to some of the present claims, only drawings are cited with little or no discussion. Certainly, the drawings do not contain any suggestion as to why the references should be combined. Accordingly, Applicants submit that the combination is improper.

II. Summary



Applicants have presented technical explanations and arguments fully supporting their position the claims recite subject matter which is not taught, suggested or disclosed by Chatterjee, Sayan or any combination thereof. Applicants have also demonstrated that the combination is improper. Accordingly, Applicants submit that the present Application is in a condition for Allowance. Reconsideration of the claims and a Notice of Allowance are earnestly solicited.

RECEIVED

SEP 07 2004

Technology Center 2100

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Gregory M. Doudnikoff".

Gregory M. Doudnikoff
Attorney for Applicant
Reg. No. 32,847

GMD/ssc

Docket No: CA9-1999-0046-US1

PHONE: 919-254-1288 FAX: 919-254-4330